

## **REMARKS**

**Claim 1** and **Claims 3 - 25** are pending in the above-identified patent application.

In the above-referenced Office Action, **Claims 1 - 4, 9 - 14, & 20 - 23** are rejected under **35 U.S.C. §103(a)** as being unpatentable over U.S. Patent **4,842,411** to *Wood et al.* and in view of U.S. Patent **6,188,431** to *Oie et al.*

**Claims 5 - 8, 17 - 19, & 24 - 25** are rejected under **35 U.S.C. §103(a)** as being unpatentable over U.S. Patent **4,842,411** to *Wood et al.* and in view of U.S. Patent **6,188,431** to *Oie et al.* and U.S. Patent **6,388,666** to *Murray*.

**Claims 15 - 16** are rejected under **35 U.S.C. §103(a)** as being unpatentable over U.S. Patent **4,842,411** to *Wood et al.* and in view of U.S. Patent **6,188,431** to *Oie et al.* and U.S. Patent **6,005,613** to *Endsley et al.*

The Applicant respectfully traverses the Examiners rejections and objections as set forth in the above mentioned Office Action. Moreover, the Applicant respectfully requests reconsideration of the application in view of the foregoing amendments and the discussion that follows.

The status of the Claims is now as follows: **Claim 1** and **Claims 3 - 25** are pending in the present application; **Claim 2** is Canceled; **Claims 1, 3, 4, 6, 9, 12, 17, 20, 22, 23, & 24** have been amended. Accordingly, **Claim 1** and **Claims 3 - 25** are active in the present application. The Applicant believes that all claims as amended herein are enabled by the Specification. No new matter was introduced in amending the Claims.

## **THE PRESENT AMENDMENT**

Prior to proceeding to a detailed discussion of the merits of the outstanding rejections and objections to the Claims, it will first be helpful to summarize the changes made by the amendments set forth herein. The Claims as amended herein are set forth in the above **CLAIMS LISTING**: (see **Page 2** herein).

### **a. Amendments to the Claims**

Applicant has amended **Claims 1, 3, 4, 6, 9, 12, 17, 20, 22, 23, & 24** to particularly point out and to distinctly claim the subject matter the Applicant regards as his invention.

### **i. Amendments to Independent Claim 1**

**Claim 1** has been amended herein to distinctly recite that the stereo image capture system of the present invention comprise first and second digital cameras with each digital camera *adapted for hand-held use by a user as a stand-alone digital camera* and that each of the digital cameras is operative to capture a first digital image and a second digital image. The words first image and second image were replaced with the more precise language of *first digital image* and *second digital image* so that it is clear that the first and second digital cameras (**11, 13**) capture digital images as is clearly understood in the photographic arts for stand-alone and hand-held digital cameras (i.e. they are used for taking photographs in a digital format).

Moreover, the additional limitations recited in Canceled **Claim 2** have been incorporated into **Claim 1** which now recites that the first and second digital cameras (**11, 13**) are adapted to be connected with each other and that when the first and second digital cameras are connected with each other the cameras form the stereo image capture system **100**. Therefore, the previous term "*linked*" is now replaced with the term "*connected with each other*".

Support for the amendments to **Claim 1** can be found in the Specification as originally filed, for example, original **Claim 2**, **FIGS. 1** through **14b** of the Drawings, Page 3, lines 1 - 33 of the Summary of the Invention, and Page 7, lines 10 - 33, Page 8, lines 1 - 14, Page 14, lines 5 - 17, and Page 16, lines 8 - 27, of the Detailed Description.

ii. **Amendments to the Dependent Claims**

**Claims 3, 4, 9, 12, 17, 20, 22, 23, & 24** have been amended to conform their language with that of independent **Claim 1** from which they depend. That is, the language of “connected with”, “first digital image”, and “second digital image” are now recited in those claims. **Claim 3** was amended to depend directly from **Claim 1** instead of Canceled **Claim 2**.

Support for the amendments to **Claims 3, 4, 9, 12, 17, 20, 22, 23, & 24** can be found in the Specification as originally filed, for example, original **Claim 2**, **FIGS. 1** through **14b** of the Drawings, Page 3, lines 1 - 33 of the Summary of the Invention, and Page 7, lines 10 - 33, Page 8, lines 1 - 14, Page 14, lines 5 - 17, and Page 16, lines 8 - 27, of the Detailed Description.

**Claim 6** was amended to distinctly recite that the data port connector **33** includes an adjustable length **39** and connects the first digital camera with the second digital camera and connects the first data port with the second data port.

Support for the amendment to **Claim 6** can be found in the Specification as originally filed, for example, **FIGS. 12a** and **12b** of the Drawings, and Page 11, lines 19 - 33 and Page 12, lines 1 - 4 of the Detailed Description.

## ARGUMENT

### **A. CLAIMS REJECTION UNDER 35 U.S.C. §103(a)**

The Office Action mailed **12 March 2004** states: **Claims 1 - 4, 9 - 14, & 20 - 23** are rejected under **35 U.S.C. §103(a)** as being unpatentable over U.S. Patent **4,842,411** to *Wood et al.* and in view of U.S. Patent **6,188,431** to *Oie et al.*; **Claims 5 - 8, 17 - 19, & 24 - 25** are rejected under **35 U.S.C. §103(a)** as being unpatentable over U.S. Patent **4,842,411** to *Wood et al.* and in view of U.S. Patent **6,188,431** to *Oie et al.* and U.S. Patent **6,388,666** to *Murray*; and **Claims 15 - 16** are rejected under **35 U.S.C. §103(a)** as being unpatentable over U.S. Patent **4,842,411** to *Wood et al.* and in view of U.S. Patent **6,188,431** to *Oie et al.* and U.S. Patent **6,005,613** to *Endsley et al.*

#### **1. Standards Governing the Obviousness Determination**

Obviousness under **35 U.S.C. §103** is based on the underlying factual inquiries set forth in *Graham v. John Deere*: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art; and (4) objective evidence of secondary considerations. *Bausch & Lomb v. Barnes/Hydrocurve*, 796 F.2d 443 (Fed. Cir. 1986).

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). The appropriate inquiry is *not* whether it would have been obvious to substitute an element, or modify the prior art, in a manner advanced by the Examiner, because that is not the appropriate test of patentability. Furthermore, if an independent claim is nonobvious, then any claim depending therefrom is nonobvious. See e.g., *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988).

Rather, to meet its burden of showing prima facie obviousness, the PTO must necessarily show some objective teaching that would lead one of ordinary skill in the art to combine the relevant teachings to solve the problem confronting the applicant. *In re Fine, supra*.

Further, "it is impermissible within the framework of **§103** to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art." *Bausch & Lomb, 796 F.2d at 448*. A reference applied against an applicant must be considered *in its entirety*, including those portions of the reference that teach away from an applicant's invention. *Id.*

**i. Rejection of Claims 1 - 4, 9 - 14, & 20 - 23**

The Examiner in the Office Action mailed **12 March 2004** stated that independent **Claim 1** was **§103(a)** obvious and unpatentable over U.S. Patent **4,842,411** to *Wood et al.* and in further view of U.S. Patent **6,188,431** to *Oie et al.* The Applicant respectfully traverses the rejection.

The Examiner contends that *Wood* discloses in Figure 1 a stereo image capture system including a first digital camera (CCD array 4) for capturing a first image and including a first optical axis 11, and a first data port (21, 24) and a second digital camera (CCD array 7) for capturing a second image and including a second optical axis 12, and a second data port (22, 26). Furthermore, the Examiner contends that the first and second digital cameras (4,7) are adapted to capture a stereo image.

First, the mere use of the CCD arrays in *Wood* is not in itself enough to make a digital camera as the Examiner contends in his selective reading of *Wood*. A casual reading of ALL four corners of *Wood* clearly shows that two separate user hand-held and a stand-alone digital cameras (11, 13) of the present application are not taught or suggest explicitly or inherently by *Wood*. The stereo image capture system **100** of the

present application clearly recites that two separate digital cameras (**11, 13**) are connected with each other to form the system **100**. What the Applicant regards as a “digital camera” is clear from the written description and the detailed drawings of the present application. That is, a digital camera is a device for taking digital photographic images as is well understood in the photographic arts.

According to the MPEP, a proposed modification of the prior art reference cannot render the prior art unsatisfactory for its intended use. **MPEP 2143.01 May 2004** There is no teaching in *Wood* that the 3-dimensional measurement system that captures stereo images from CCD's (4, 7) can be separated into two stand-alone digital cameras. In fact, *Wood* teaches away from an ability to use CCD's (4, 7) separately from each other because the 3-dimensional measurement system is a fully integrated system for converting stereo image data from CCD's (4, 7) into parallax data that is further converted into an array of Z-depth data indicative of the shape of a surface of a 3-dimensional object 1 (see the Abstract of *Wood*).

Moreover, as further evidence that *Wood* teaches an integrated system and teaches away from separable digital cameras, a careful reading of *Wood*'s Col 1, lines 60 - 68, Col. 23, lines 65 - 68, Col. 3, lines 1 - 68, Col. 4, lines 1 - 14, and Col. 5, lines 1 - 25 explicitly disclose that a light projector 13 is an essential and inseparable component of the 3-dimensional measurement system and that the system requires a specific light pattern (see Figure 3 and Claim 1) to be projected onto the 3-dimensional object 1 and that the light pattern must have a periodic and smoothly varying intensity in the X-direction and a non-changeable intensity in the Y-direction in order to measure parallax phase for the Z-depth data (Col 1, lines 60 - 68). In Col. 3, lines 60 - 68 and Col. 4, lines 1 - 5, *Wood* clearly states that the 3-dimensional measurement **system** requires calibration processes that are well known to those workers in the photogrammetry art.

According to Webster's Third New International Dictionary (Unabridged), photogrammetry is the science of making reliable measurements using photographic means. *Wood* teaches that his 3-dimensional measurement system use digitizers to

convert the CCD data into digital gray-scale values to be used in computing range or depth values for points in an X-Y array projected onto the object 1. Therefore, the intended use of the 3-dimensional measurement system would be rendered inoperative if the system is split into separate CCD arrays (i.e. first and second digital cameras) absent the light projector 13. Therefore, if split, the system would not be operative as a photogrammetry tool for measuring shapes and depths of a surface of the object 1.

Second, the MPEP requires a proposed modification cannot change the principle of operation of the *Wood* reference. **MPEP 2143.01 May 2004** As argued above, separating the CCD arrays (4, 7) from the light projector 13 would change the photogrammetry principles upon which the 3-dimensional measurement system of *Wood* is based because it is an integrated system designed for the specific purpose of measuring surface shapes and depths of the object 1 and has no alternate use as two separate CCD arrays that can be used as digital cameras as that term is understood in the photography art where digital cameras are used for capturing images of people, event, scenery, and the like.

Third, although *Wood* teaches the use of CCD arrays (4,7) from which digital data is read and then digitized into digital gray-scale data, *Wood* does not teach that each CCD and its associated digitizer is operable as a stand-alone and user hand-held digital camera as is claimed in the present application. As is well understood in the digital camera art, much more than a CCD array and a digitizer are required to enable a working digital camera for use in photography. The additional software and hardware necessary to convert the CCD data into a viewable or printable image (e.g. a JPEG or other image format) are absent in *Wood* and all *Wood* teaches is gray-scale image data for the limited purpose of making measurements of surface shape and depth of the object 1. The structural differences between the photogrammetry tool taught by *Wood* and a working digital camera for taking pictures are extreme and *Wood* falls short in disclosing all the structure needed for a working digital camera.

Consequently, one of ordinary skill in the art could not separate the CCD arrays and the digitizers as disclosed in *Wood* and have a reasonable expectation of success in garnering first and second digital cameras for use in taking digital photographs. The MPEP requires a reasonable expectation of success to support a prima facie rejection under §103(a). *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986), **MPEP 2143.02 May 2004**

Finally, ALL claim limitations of **Claim 1** must be taught or suggested by the prior art disclosed in *Wood* and *Oie*. *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir 1988), **MPEP 2143.03 May 2004** As argued above, *Wood* does not teach or suggest all of the limitations of independent **Claim 1** as amended herein because *Wood* does not teach first and second digital cameras (11, 13) that can be connected with each other for capturing a stereo image. The system disclosed in *Wood* can only be used for taking measurements and is not adaptable as a first and a second digital camera without additional modifications that are neither taught or suggested by *Wood*.

Moreover, *Wood* in combination with *Oie* does teach, suggest, or motivate one of ordinary skill in the art to combine the teachings of *Wood* and *Oie* and arrive at ALL of the limitations of independent **Claim 1** as amended herein. Although *Oie* teaches first and second digital cameras and a communications link between those cameras, there is no motivation or a suggestion of a desirability of combining the first and second digital cameras by connecting them to each other to capture a stereo image. *Wood* teaches away from capturing a stereo image because *Wood* uses stereo image data for a measurement purpose only and does not teach capturing a stereo image for use as an image to be viewed by a user. *Oie* is absolutely silent as to any use of digital cameras for capturing a stereo image or connecting digital cameras to each other for capturing a stereo image. The fact that *Oie* discloses communications links between digital cameras is not relevant because the claimed invention as a whole must be considered in determining the differences between independent **Claim 1** and the prior art of record. **MPEP 2141.02 May 2004**



A careful reading of the Detailed Description and the Drawings of the present application make it clear, that taken as a whole, the subject matter of the present application discloses first and second digital cameras (**11, 13**) of the type that are commonly used for taking photographs in a digital format as opposed to an analog format (i.e. using silver halide film) and that one of ordinary skill in the photographic art or in the digital camera art would understand what the Applicant regards as her invention and what is meant by a digital camera in independent **Claim 1**.

In conclusion, for all of the reasons argued above, the Applicant respectfully submits that the Examiner has not met the burden of proving a prima facie case of obviousness of independent **Claim 1** under **35 U.S.C. §103(a)**. Accordingly, the Applicants respectfully submit that as amended herein, independent **Claim 1** is not anticipated by, is not **§103(a)** obvious, and is patentably distinct over the prior art of record. Therefore, the rejection of independent **Claim 1** under **35 U.S.C. §103(a)** ought to now be withdrawn and **Claim 1** ought to now be allowed.

If an independent claim is nonobvious, then any claim depending therefrom is also nonobvious. *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir 1988). Because dependent **Claims 3 - 4, 9 - 14, & 20 - 23** depend directly or indirectly from amended independent **Claim 1** and incorporate all of the limitations of independent **Claim 1**, then dependent **Claims 3 - 4, 9 - 14, & 20 - 23** are not anticipated by, are not **§103(a)** obvious, and are patentably distinct over the prior art of record. Accordingly, the rejections of dependent **Claims 3 - 4, 9 - 14, & 20 - 23** under **35 U.S.C. §103(a)** ought to now be withdrawn and those claims ought to now be allowed.

ii. **Rejections of Claims 5 - 8, 17 - 19, & 24 - 25**

For the same reasons argued above for independent **Claim 1**, taken alone or in combination, *Wood*, *Oie*, and *Murray* fail to teach, suggest, or motivate one of ordinary skill in the art to arrive at ALL of the subject matter recited in independent **Claim 1** as amended herein. Therefore, because rejected dependent **Claims 5 - 8, 17 - 19, & 24**

- **25** depend directly or indirectly from independent **Claim 1** and incorporate all of the limitations of amended **Claim 1**, then dependent **Claims 5 - 8, 17 - 19, & 24 - 25** are not anticipated by, are not **§103(a)** obvious, and are patentably distinct over the prior art of record. Accordingly, the rejections of dependent **Claims 5 - 8, 17 - 19, & 24 - 25** under **35 U.S.C. §103(a)** ought to now be withdrawn and those claims ought to now be allowed.

iii. **Rejections of Claims 15 - 16**

For the same reasons argued above for independent **Claim 1**, taken alone or in combination, *Wood*, *Oie*, and *Endsley* fail to teach, suggest, or motivate one of ordinary skill in the art to arrive at ALL of the subject matter recited in independent **Claim 1** as amended herein. Therefore, because rejected dependent **Claims 15 - 16** depend directly or indirectly from independent **Claim 1** and incorporate all of the limitations of amended **Claim 1**, then dependent **Claims 15 - 16** are not anticipated by, are not **§103(a)** obvious, and are patentably distinct over the prior art of record. Accordingly, the rejections of dependent **Claims 15 - 16** under **35 U.S.C. §103(a)** ought to now be withdrawn and those claims ought to now be allowed.

### **CONCLUSION**

For the reasons set forth above, the Applicant respectfully submits that each of the Claims presently in the application are nonobvious and patentably distinct over the prior art of record and are enabled by the Specification as filled. The Applicant respectfully requests that the Examiner withdraw the rejections and objections to the Claims as set forth in the Office Action mailed **12 March 2004** and requests the issuance of a Notice of Allowance such that the present application may timely issue as a U.S. patent.

### **AUTHORIZATION TO CHARGE FEES DUE TO HP PTO DEPOSIT ACCOUNT**

Any fees due in response to the Office Action mailed **12 March 2004**, including any fees for Extensions of Time, are Authorized to be charged to the HP PTO Deposit Account Number: **08-2025**.

Respectfully submitted,

**Xuemei Zhang, et al.**

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By: 

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